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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Michael Tombs

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EXAMINER

LAMB, BRENDA A

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

05/13/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/044,798	Applicant(s) TOMBS ET AL.	
	Examiner Brenda A. Lamb	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8,9,19,20 and 25-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8,9,19,20 and 25-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 9 and 19-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The originally filed specification fails to teach a means to separate the holder and nozzle to effect withdrawal of the leads from the solder as set forth in claim 9.

If applicant disagrees then he needs to provide support in the specification and/or drawings.

Note applicant that when one employs means plus function language in a claim such as the means to separate the holder and nozzle to effect withdrawal of the leads from the solder then applicant must set forth in the specification adequate disclosure showings what is meant by that language. See *in re Donaldson Co.* 16 F.3d 1189, 1195 29 USPQ2d 1845, 1850 (FED. CIR.1994).

The originally filed specification fails to teach both the holder and nozzle is movable between a first position below and separated from the component and a second position in which its leads to be soldered into the solder surface at the nozzle outlet as set forth in claim 20.

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If applicant disagrees then he needs to provide support in the specification and/or drawings.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 8 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The format of claim 8 is improper in that it fails to end with a period. It is suggest that applicant amend claim 8 as follows: at last line of claim 8 after "wetted by the molten solder" insert --.--.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

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were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 10-70360.

Japan '360 teaches the design of a dip coating apparatus comprised of the following elements: a nozzle/reservoir 4 having an outlet through which solder is flowed wherein the nozzle includes a member/elongate plate 6 provided at the nozzle outlet; a member/elongate plate 6 having an upwardly facing surface and side surfaces extending downwardly and is made of material which is wetted by the molten solder; and a conveyor or a device which "supports" an object thereby one that supports reads one that holds as defined The American Heritage Dictionary, Second College Edition. Japan '360 conveyor moves the printed circuit board from a first position (spaced way from the reservoir) and to a second condition wherein the printed circuit board is positioned above the reservoir with leads extending partially into the molten solder. Japan '360 conveyor 1 is capable of holding a variety of substrates including one wherein the leads fit between adjacent component leads in the second condition of the holder since Japan '360 teaches every structural element of the dip coating apparatus. Note it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from

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a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ 2d 1647 (1987). "[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). Thus Japan '360 teaches every element of the claimed apparatus as set forth of claim 8.

Claims 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 10-70360 in view of Applicant's Admitted Prior Art Teaching (hereinafter referred to as Applicant's PAT – see Figure 1 and page 6 lines 4-10 of the instant specification).

Japan '360 is applied for the reasons noted above. Japan '360 fails to teach a means for lowering the solder surface in order to effect withdrawal of the component leads from the solder. However, it would have been obvious to modify the Japan '360 apparatus by providing a means for lowering the solder surface in order to effect withdrawal of the component leads from the solder such as one disclosed by Applicant's PAT since Applicant's PAT teaches the speed of impeller 12 may be reduced to drop the solder surface away from the under side of the board/substrate for the obvious advantage of removing excess from the substrate at the end of the coating process. Further, Japan '360 apparatus is capable of coating component leads of a substrate which are selective movable between a raised and lowered conditioned for being dipped into the solder surface at the nozzle outlet since Japan '360 as modified teaches every structural element of the apparatus as set forth in claim 25. With respect to claim 28, although Japan '360 fails to teach the member is positioned to project through the solder surface as the leads are withdrawn from the solder, it would have been obvious

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given the modifications of the Japan '360 apparatus as discussed above with the means for lowering the solder surface in order to effect withdrawal of the component leads from the solder would have enabled the member to project through the solder surface as the leads are withdrawn from the solder to obviously prevent re-wetting of the board/substrate with solder. With respect to claim 27, Japan '360 shows in Figure 1 that the slots arranged at the end portions of member/elongate plate 6 interlocks with the upper end edge of the tank 3. Japan '360 fails to teach that member/elongate plate 6 is movable. However, it would have been obvious given the modifications of the Japan '360 apparatus as discussed above to arrange the interlocked member/elongate plate 6 such that it is manually movable or removable from the tank 3 for the obvious reason to facilitate maintenance of the coating apparatus or to enable one to line up the member with the conveyor system. With respect to claim 26, Japan '360 teaches that a portion of the member/elongate plate is disposed below the level of the solder as the solder flows through the nozzle outlet. With respect to claim 29, the same rejection applied to claims 25 and 27 is applied here. Further, it would have been obvious to modify the Japan '360 apparatus by providing a means for lowering the solder surface from the holder in order to effect withdrawal of the component leads from the solder such as one disclosed by Applicant's PAT since Applicant's PAT teaches the speed of impeller 12 may be reduced to drop the solder surface away from the under side of the board/substrate for the obvious advantage of removing excess from the substrate at the end of the coating process.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 10-70360 in view of Gileta et al 5,203,489 and Applicant's Admitted Prior Art Teaching (hereafter referred to as Applicant's PAT – see Figure 1 and page 6 lines 4-10 of the instant specification).

Japan '360 is applied for the reasons noted above. Japan '360 fails to teach a nozzle/reservoir which is movable in the manner set forth in claim 20 and a means for selectively lowering the solder surface in order to effect withdrawal of the component leads from the solder. However, it would have been obvious to modify the Japan '360 apparatus by providing a means for lowering the solder surface in order to effect withdrawal of the component leads from the solder such as one disclosed by Applicant's PAT since Applicant's PAT teaches the speed of impeller 12 may be reduced to drop the solder surface away from the under side of the board/substrate for the obvious advantage of removing excess from the substrate at the end of the coating process. Further, it would have been obvious given the modifications of the Japan '360 apparatus as discussed above to provide an adjustment means for adjusting the height of the nozzle/reservoir such as taught by Gileta et al (elements 14,16 of Gileta et al) to enable one to perform maintenance on the dip soldering apparatus as needed.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 10-70360 in view of Gileta et al 5,203,489 and Kent et al 4,527,731 and Applicant's Admitted Prior Art Teaching (hereafter referred to as Applicant's PAT – see Figure 1 and page 6 lines 4-10 of the instant specification).

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Japan '360 is applied for the reasons noted above. Japan '360 fails to teach a nozzle/reservoir and holder is movable in the manner set forth in claim 9. However, it would have been obvious given the modifications of the Japan '360 apparatus as discussed above to provide an adjustment means for adjusting the height of the nozzle/reservoir such as taught by Gileta et al (elements 14,16 of Gileta et al) to enable one to perform maintenance on the dip soldering apparatus as needed. Further, it would have been obvious given the modifications of the Japan '360 soldering apparatus by substituting its conveyor system with that taught by Kent et al which includes an adjustable tilt mechanism to tilt sections of the conveyor if needed so the combination of movable holder and nozzle would enable the component to be spaced or remote from the nozzle/reservoir at one position and in other position the leads dipped in the solder for the obvious advantage to enable one facilitate maintenance on the apparatus. Further, the recitation that the member is positioned so as to project from the solder surface as the leads are removed from the solder does not structurally further limit the apparatus over Japan '360 since it would have been obvious given the modified Japan '360 apparatus to provide a means for lowering the solder surface in order to effect withdrawal of the component leads from the solder such as one disclosed by Applicant's PAT since Applicant's PAT teaches the speed of impeller 12 may be reduced to drop the solder surface away from the under side of the board/substrate for the obvious advantage of removing excess from the substrate at the end of the coating process.

Claims 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan 10-70360 in view of Gileta et al 5,203,489 and Kent et al 4,527,731 and Applicant's

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Admitted Prior Art Teaching (thereafter referred to as Applicant's PAT – see Figure 1 and page 6 lines 4-10 of the instant specification) and Elliott et al 3,196,829 and Barnes et al 3,056,370.

Japan '360, Gileta et al, Kent et al and Applicant's PAT are applied for the reasons noted above but fails to teach member/elongate plate is a honeycombed structure. However, it would have been obvious given the modifications of the Japan '360 apparatus as discussed above to provide the member/elongate plate with a honeycombed structure since Elliott et al and Barnes et al both teach arranging a honeycombed structure in the flow bath of solder through the nozzle/reservoir to straighten flow of solder thereby helping to eliminate turbulence of the solder and providing a level wave of solder.

Applicant's arguments filed 2/25/2009 have been fully considered but they are not persuasive.

Applicant's argument that Japan '360 fails to teach the component holder cooperating to apply solder to the leads of the component with the nozzle/reservoir including a plate separating the leads during the soldering action is found to be non-persuasive. The term "hold" as defined by The American Heritage Dictionary, Second College Edition is defined is to "support" or "to maintain in a certain position or relationship" and therefore the Japan '360 conveyor 1 reads on a holder.

It is suggested that applicant amend claims 29 as follows in order to place claim 29 in condition for allowance: at line 4 before "an elongate plate" insert – a member

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assembly including --; at line 12 after "wherein said plate is" insert – electrically controlled such that it is --.

It is suggested that applicant amend 8 as follows in order to place claim 8 in condition for allowance: at line 5 before "an elongate plate" insert – an assembly including --; at lines 5-6 before "surface of the molten solder" delete "positioned at" and insert – movable relative to --; at line 6 after "molten solder" and insert -- by means of spring-biased arms which support and move said plate; at line 17 after "each side of the plate edge respectively and the plate" change "surface" to "surfaces".

It is suggested that applicant amend 25 as follows in order to place claim 25 in condition for allowance: at line 5 before "nozzle includes" insert – a member assembly including --; at lines 5 before "having a surface" insert – said member --; at line 8 after "leads from the solder" and insert – and wherein the member assembly includes arms, said arms are spring biased or electrically controlled so as to support and move said member relative to surface of the solder --. Note applicant if claim 25 is amended as suggested then claim 27 will need to be canceled.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brenda A. Lamb whose telephone number is (571) 272-1231. The examiner can normally be reached on Monday-Tuesday and Thursdays. The examiner can also be reached on alternate Wednesdays and Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton, can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brenda A Lamb
Primary Examiner
Art Unit 1792

/Brenda A Lamb/

Primary Examiner, Art Unit 1792

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